

Confirmation No. 5345

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	FAN	Examiner:	Le, Dinh T.
Serial No.:	10/570,050	Group Art Unit:	2816
Filed:	February 27, 2006	Docket No.:	US030282US2 (NXPS.276PA)

Title: METHOD AND SYSTEM FOR PASSBAND RIPPLE CANCELLATION
IN CASCADING FILTERS

REPLY BRIEF

Mail Stop Appeal Brief-Patents
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Customer No.
65913

Dear Sir:

This Reply Brief is submitted pursuant to 37 C.F.R. §41.37, in support of the Appeal Brief filed September 20, 2010 and in response to the Examiner's Answer of December 2, 2010, which maintains the rejections of claims 1-6, 9-18 and 21-25 as set forth in the Final Office Action dated April 22, 2010.

Authorization is given to charge/credit **Deposit Account 50-4019 (US030282US2)** all required fees/overages to enter this paper.

I. Status of Claims

Claims 1-6, 9-18 and 21-25 stand rejected and are presented for appeal. Claims 7-8 and 19-20 were previously cancelled.

II. Grounds of Rejection

The grounds of rejection to be reviewed on appeal are as follows:

- A. Claims 1-2, 4-6, 9-12, 14-18, 21 and 24-25 stand rejected under 35 U.S.C. § 103(a) over Hwang *et al.* (U.S. Patent No. 6,678,511).
- B. Claims 3, 13 and 22-23 stand rejected under 35 U.S.C. § 103(a) over Hwang *et al.* (U.S. Patent No. 6,678,511) in view of Chan *et al.* (U.S. Patent No. 6,920,471).
- C. Claims 1-2, 4-6, 9, 11-12, 14-16, 18, 21 and 24 stand rejected under 35 U.S.C. § 103(a) over Jeanjean *et al.* (U.S. Patent No. 6,954,119) in view of Hwang *et al.* (U.S. Patent No. 6,678,511).

III. Appellant's Reply Argument

The Examiner's Answer selectively addresses aspects of Appellant's Appeal Brief. The remaining, unaddressed aspects have not been rebutted or specifically addressed with evidence, argument or findings of fact. At least some of these undressed aspects are listed below, with reference to the supporting pages of Appellant's Appeal Brief.

- The Examiner does not dispute that the Examiner has proposed a set of experimental possibilities that are infinite in number without specific guidance toward the claimed solution. (p. 6)
- The Examiner does not dispute that the order of the filter is not a simple variable that can easily be modified, *e.g.*, by adjusting one parameter independent of other circuit parameters. (p. 7)
- The Examiner does not dispute that the rejection relies upon a circular argument that the purported reason that the skilled artisan would realize that filters differing in order by exactly one provide the advantageous features is because they provide advantageous features. (p. 9)

- The Examiner does not dispute that the rejection has been rebutted by the criticality of the claim limitations taught by Appellant's specification. (pp. 9-10)
- The Examiner does not dispute that the primary '119 reference is directed toward the use of specially-selected poles and zeros and that the proposed modification would necessarily frustrate the primary purpose of the '119 reference by moving the poles and zeroes. (pp. 11-12)
- The Examiner does not dispute that the proposed modification would require operating at frequencies that are 7000 times higher than the disclosed operable limit. (pp. 13-14)
- The Examiner does not dispute that the suggested modification of the '511 reference to add a digital filter introduces the problem which the Examiner asserts as motivation to perform the modification. (p. 14)

Applicant respectfully requests that the above undisputed facts be included in the Board's findings of fact. Appellant also provides a response to the aspects that were addressed hereafter.

The Examiner states, in part (p. 10):

Hwang et al evidently suggests the direction to achieve the flatness of ripples in the pass band of the cascaded filters (12, 20) by clearly disclosing on lines 5-25 of column 5 that the number of stages of the second filter (12) would be increased or decreased according to the performance (ripples) of the main filter (20).

Appellant responds:

The cited portions state that the number of stages can be "increased or decreased according to the performance of the main band pass filter 20 or the repeater system whose flatness of the ripple in the pass band is desired to be enhanced." This statement explains that the *overall performance* of the main band pass filter or repeater system can be linked to the number of stages, but provides little further guidance (primarily a general statement that an even number of stages may be more preferred). Appellant's contention that this would result in an infinite number of possible combinations remains unchallenged. Moreover, the cited portions go on to state that the band pass filter "is fabricated to have the transfer

characteristics of a counter ripple 2 whose magnitude value is approximate to that of the pass band ripple 1 of the band pass filter 20.” This statement supports that the component characteristics (e.g., values for an inductor, resistor or capacitor), would be viewed as being determinative of the ripple cancellation properties. The obvious to try standard is only appropriate where there is a recognized problem or need in the art, and there are a finite number of identified predictable solutions to the recognized need or problem that one skilled in the art could pursue with a reasonable expectation of success. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007); *See also*, M.P.E.P. § 2143(E). Finite means that the number of solutions is, “in the context of the art, small or easily traversed.” *Ortho-McNeil Pharm. Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008). Accordingly, the Examiner has not shown that there are a finite number of identified predictable solutions. Moreover, there is no evidence that, absent randomly happening upon the claimed solution, skilled artisan would have found results that lead toward the specific solution. A blanket assertion the skilled artisan could have stumbled upon the claimed solution from an unbounded number of possibilities is not sufficient to sustain a rejection for obviousness. Accordingly, the rejection should be reversed.

The Examiner states, in part (p. 11):

There is nothing recited in the rejected claims about the cost of the design and the production of the filter circuit.

Appellant responds:

Appellant’s arguments relative to the cost did not purport to be based upon the claim limitations. Appellant’s arguments were relevant to the reasonableness of the Examiner’s proposed combination. The Examiner’s alleged reason to combine the references must be based upon the prior art (rather than the claims) and represents an important aspect of an obviousness analysis. Accordingly, the Examiner has not rebutted Appellant’s evidence of non-obviousness (e.g., that the skilled artisan would have reason not to undertake open-ended experimentation in view of the expected disadvantages of the proposed modification and the uncertainty of any advantage being gained). In this regard, the ‘119 reference states that,

“[i]n designing filters, the filter designer is aware that component sensitivity increases with the filter order. The latter should therefore be held as low as possible consistent with the filter specifications.” (See Col 2:26-29). This is objective evidence of teachings leading away from open-ended modifications of the filter order (*e.g.*, due to problems with sensitivity, and the number of circuit parameters affected). The Examiner’s express refusal to consider this evidence is improper and shows a failure to objectively view the factors of patentability and the rejections should therefore be reversed.

The Examiner states, in part (p. 11):

The cascaded filter of Jeanjean et al has the same structure as the claimed circuit in which the cascaded filter requires two filters connected in series and have the orders difference in a value by exactly one.

Appellant responds:

The Examiner’s assertion of identical structure is contradicted by the Examiner’s implicit acknowledgement that the structures are not the same per the assertion that the structure be modified in view of the secondary ‘511 reference. The Examiner does not dispute that the primary purpose of the ‘119 reference is to approximate a higher order filter by careful design of a cascade of two lower-order filters (*see, e.g.*, Col. 4:43-61). To accomplish this goal, the ‘119 reference teaches how to create the desired filter characteristics by constructing each lower order filter to have a transfer function wherein the poles and/or zeros of the transfer function are a subset of the higher order filter (*see, e.g.*, Col. 5:5-10). In particular, the primary ‘119 reference teaches that this is accomplished through the careful selection of resistive, capacitive and inductive values (*see, e.g.*, Col. 5:10-15). Regardless of whether or not modifications to the primary ‘119 reference would still have some type of a “higher order behavior,” (Examiner’s Response, p. 12) the primary purpose of the ‘119 reference is to approximate specific characteristics of a selected high order filter. Modifying the order of the filters would modify the transfer function of the individual filters as well as the resulting combination thereof. This would be an improper deviation from a device that accurately approximates the specific characteristics of the selected high order filter. Thus, the Examiner is impermissibly attempting to modify the

filters in a manner that departs from the primary purpose of approximating a specific higher order filter.

Such an open-ended experimentation would not be suggested since this would significantly depart from the carefully approximated high order filter towards a filter that no longer approximates the specifically-selected behavior. Put another way, the skilled artisan would not use the teachings of the '119 reference to select circuit components that would approximate a specific high order filter only to then modify the filter away from the approximation when the modification requires an open-ended experimentation that involves modification of filter order.

IV. Conclusion

In view of the above, Appellant submits that the rejection of claims 1-6, 9-18 and 21-25 is improper and therefore requests reversal of the rejections as applied to the appealed claims and allowance of the entire application.

Authority to charge the undersigned's deposit account was provided on the first page of this brief.

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